

# ENGINEERING DATA

## STROMBERG-CARLSON NO. 500 AC-DC RADIO RECEIVERS

STROMBERG-CARLSON TELEPHONE MANUFACTURING COMPANY  
ROCHESTER, NEW YORK

### IDENTIFICATION TABLE

Model	Input Power	Frequency	Chassis	Cabinet	Speaker
500-H Blue	25-60 Cycles	AC (or DC)	31674	31806	31696
500-H Brown	25-60 Cycles	AC (or DC)	31985	32812	31976
500-H Silver	25-60 Cycles	AC (or DC)	31674	32813	31976
500-H Ivory	25-60 Cycles	AC (or DC)	31985	32814	31976
500-J	25-60 Cycles	AC (or DC)	31985	31981	31696
500-S	25-60 Cycles	AC (or DC)	31985	32026	31696

### SPECIFICATIONS

Voltage Rating	105-125 Volts
Type of Circuit	Superheterodyne
Tuning Range	.54 to 1.65 Megacycles
Number and type of tubes—6	
1—12SK7 R. F. Amplifier	1—12SQ7 Demodulator, AVC and Audio
1—12SA7 Modulator and Oscillator	1—35L6GT Output
1—12SK7 I. F. Amplifier	1—35Z5GT Rectifier
Input Power Rating	30 Watts
Intermediate Frequency	455 Kilocycles
P. M. Speaker Voice Coil Impedance at 400 Cycles	Approximately 3.5 Ohms

### FEATURES

This is a six tube superheterodyne receiver designed for operation on either DC or AC current (105 to 125 Volts). A loop antenna is built in so that no antenna or ground connections whatsoever are required. However an antenna terminal is provided on the back of

the loop assembly so that the set can be used with a regular antenna (a single wire about 75 feet long should be most satisfactory).

An automatic volume control circuit is used in this receiver and tone is adjusted by a step tone control.

### ACCESSORIES

**PLAYING RECORDS.** Any Stromberg-Carlson Record Player can be attached to this receiver by using a P-30647 phono adapter.

**HEADSET ATTACHMENT.** Headphones can be very simply attached to this receiver. Ask for P-28303 Headset Package Assembly that comes complete with headphones and installation instructions.

**CARE OF THE CABINET—500-J AND S.** The finish of Stromberg-Carlson Cabinets should be protected by using Stromberg-Carlson cabinet polish regularly. It

is available in pint cans designated as P-28601.

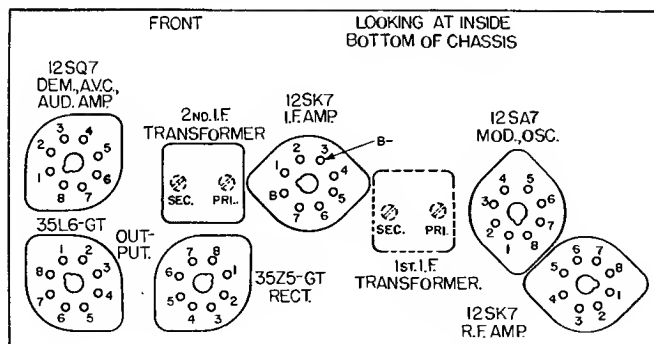
Nicks and scratches of most kinds can be repaired quickly and easily by proper use of the P-26962 Touch-Up Kit. Complete instructions are provided with each kit.

**CARE OF THE CABINET—500-H.** The plastic cabinets of the 500-H Models are of enduring construction but they must be handled with great care to prevent breakage; it is not practical to attempt repairs. A replacement cabinet is available at a nominal cost. (See Replacement Parts on Page 4.)

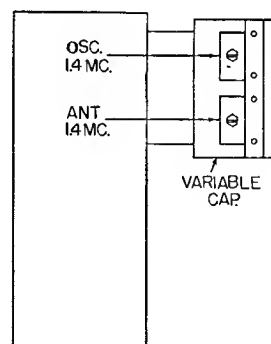
### ADJUSTING DIAL LAMP

To adjust the dial lamp simply push the pilot lamp and socket forward until maximum illumination of

the dial is obtained.



Location Chart



### ALIGNING INFORMATION

**Never realign unless absolutely necessary.**

Use a good modulated signal generator (test oscillator) with variable output voltage and a sensitive output meter across the voice coil of the speaker.

Always align using the smallest possible input from the signal generator. A strong signal makes adjustments inaccurate.

Always have the volume control "full on".

**Important:** Be sure the metal plate is fastened in place on the bottom of the chassis before alignment is attempted.

**ALIGNING PROCEDURE** (follow this order exactly).

#### I. Dial Pointer Adjustment.

With the plates of the gang tuning capacitor fully engaged set the dial pointer in a vertical position directly on the calibration marks located at the top and bottom of the dial scale.

## II. Intermediate Frequency Adjustments.

1. Tune the set to the extreme low frequency position. (Variable capacitor plates all the way in).
2. Connect the ground terminal of the signal generator to the chassis base.
3. Introduce a modulated signal of 455 kilocycles using a .01 M. F. capacitor in series with the lead from the signal generator to the oscillator aligning capacitor located on the front section of the variable capacitor.
4. Adjust the I. F. aligners for maximum output in the following order:
  - A. Secondary of second I. F. Transformer.
  - B. Primary of second I. F. Transformer.

- C. Secondary of first I. F. Transformer.
- D. Primary of first I. F. Transformer.

## III. Radio Frequency Adjustments.

1. Replace the .01 M. F. capacitor in series with the output lead of the signal generator with a 200 mmf. capacitor and connect them to the antenna terminal located on the back of the loop assembly.
2. Set the signal generator's frequency and the receiver's tuning dial to 1.4 megacycles.
3. Adjust the oscillator and antenna aligning capacitors for maximum signal.
4. Set both the signal generator's frequency and the receiver's tuning dial to 0.6 megacycles and check calibration.

NOTE: If the calibration is too far off at 0.6 megacycles, operations 2 and 3 may be repeated until the best results are obtained.

## NORMAL VOLTAGE READINGS

Use a good high resistance voltmeter having a resistance of at least 1000 ohms per volt.  
Take all D. C. voltage readings on the 500 volt scale except where an asterisk appears.  
Take all readings with chassis operating and tuned to 1000 Kc.—no signal.  
Use a line voltage of 120 volts or make allowance for the variation.

Read from indicated socket terminals to terminal No. 3 of the 12SK7 I. F. Amp. Socket (B—).

See Location Chart on Page 1 for position of terminals.

A. C. Voltages are indicated by italics; when the receiver is operated from a D. C. power supply, D. C. voltages will be obtained in place of A. C. voltages shown.

TERMINALS OF SOCKETS									
<i>Tube</i>	<i>Circuit</i>	1	2	3	4	5	6	7	8
12SK7	R. F. Amp.	—	<i>52</i>	0	0	0	+91	<i>37</i>	+86
12SA7	Mod. and Osc.	—	<i>37</i>	+86	+91	+7.5*	0	<i>24.8</i>	0
12SK7	I. F. Amp.	0	<i>24.8</i>	0	0	0	+91	<i>12.5</i>	+86
12SQ7	Demod., AVC and Audio Amp.	0	0	0	0	0	+23	<i>12.5</i>	0
35L6GT	Output	0	<i>86</i>	+98	+91	0	—	<i>52</i>	+4.8
35Z5GT	Rectifier	—	<i>120</i>	<i>114</i>	—	<i>114</i>	—	<i>86</i>	+115

\*Read on 100 V. scale of meter having a resistance of 1000 ohms per volt.

## CONTINUITY TEST

CAUTION: Remove all tubes, disconnect the receiver from the power supply and short terminal No. 8 of the 35Z5GT rectifier tube to the chassis base before making continuity test.

Use a good meter capable of measuring accurately up to several megohms.

The resistances given are often approximate, owing

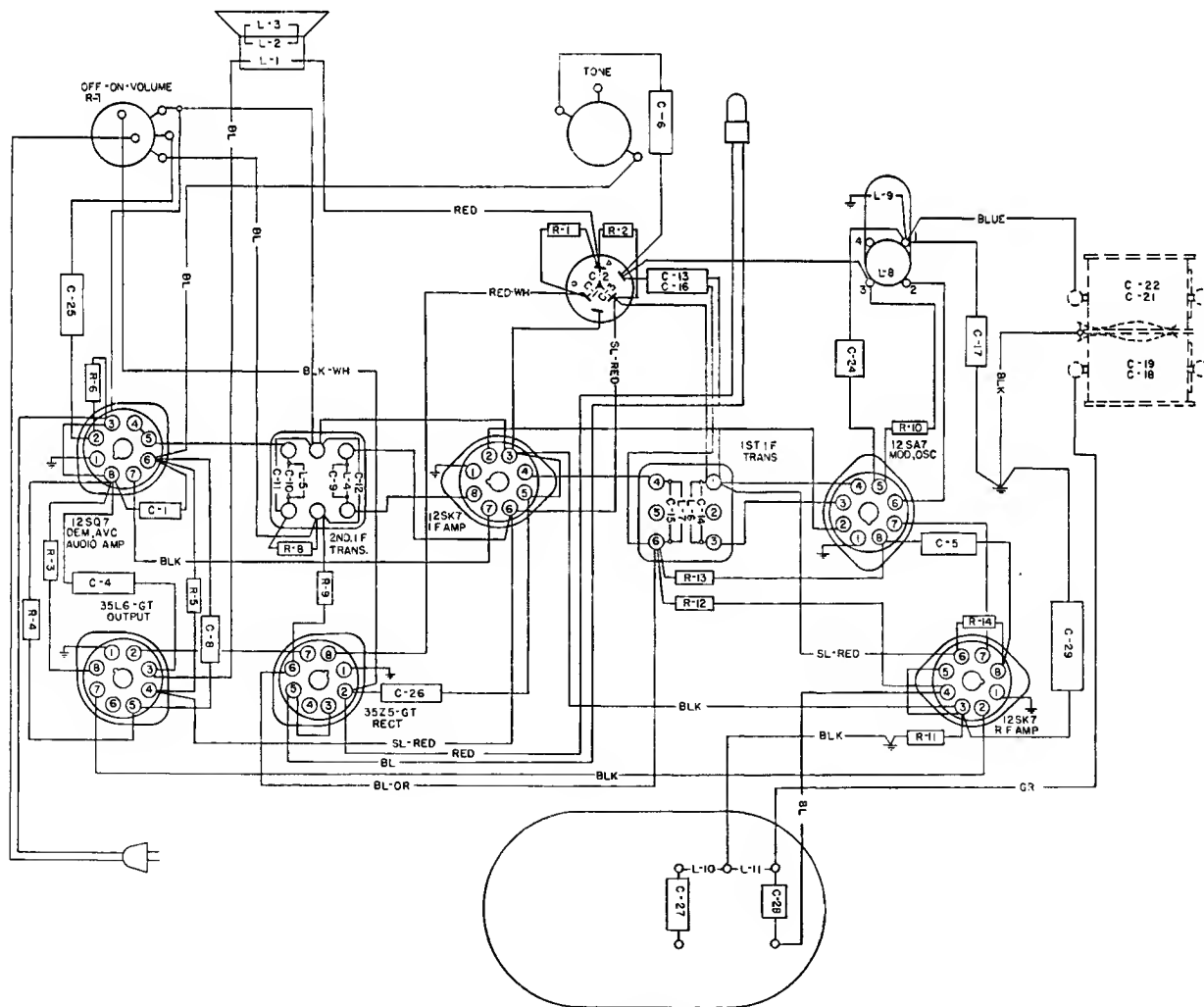
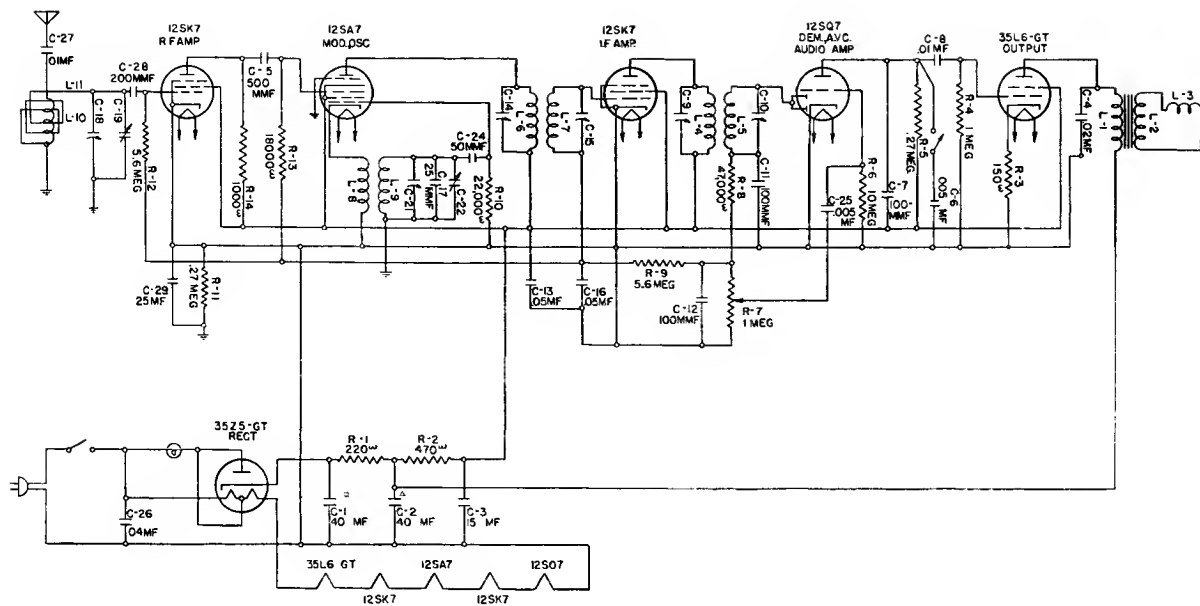
to Electrolytic Capacitors in the circuit. When this is the case, be sure to reverse the test leads and read the highest resistance.

Read from indicated terminals to chassis base except when an asterisk appears.

See Location Chart on Page 1 for position and numbering of socket terminals.

TERMINALS OF SOCKETS									
<i>Tube</i>	<i>Circuit</i>	1	2	3	4	5	6	7	8
12SK7	R. F. Amp.	S	O	270000 $\Omega$	8M	270000 $\Omega$	700 $\Omega$	O	1700 $\Omega$
12SA7	Mod. and Osc.	S	O	750 $\Omega$	700 $\Omega$	300000 $\Omega$	270000 $\Omega$	O	12M
12SK7	I. F. Amp.	S	O	270000 $\Omega$	6.8M	270000 $\Omega$	700 $\Omega$	O	750 $\Omega$
12SQ7	Demod., AVC and Audio Amp.	S	10M	270000 $\Omega$	1.5M	1.5M	270000 $\Omega$	O	270000 $\Omega$
35L6GT	Output	S	O	450 $\Omega$	700 $\Omega$	1.3M	O	O	270000 $\Omega$
35Z5GT	Rectifier	S	O	O	O	O	6M	O	S

Symbols used are as follows:  $\Omega$ —ohms; M—megohms; S—short; O—open.



Schematic Diagram  
Wiring Diagram

## REPLACEMENT PARTS

### Capacitors

Piece No.	Circuit Designation	Part
24405	C-26 . . . .	.04 mf. Capacitor
25150	C-4 . . . .	.02 mf. Capacitor
27101	C-28 . . . .	200 mmf. Capacitor
27108	C-13, 16 . . . .	2—.05 mf. Capacitors
27305	C-24 . . . .	50 mmf. Capacitor
28568	C-7 . . . .	100 mmf. Capacitor
29371	C-5 . . . .	500 mmf. Capacitor
29973	C-29 . . . .	.25 mf. Capacitor
30322	C-6, 25 . . . .	.005 mf. Capacitor
31466	C-17 . . . .	25 mmf. Capacitor
31481	C-8, 27 . . . .	.01 mf. Capacitor
31682	C-1, 2, 3 . . . .	Electrolytic Capacitor, 2—40 mf., 150 V.; 1—15 mf., 150 V.
31698	C-18, 19-21, 22 . . . .	Variable Capacitor and Pulley

### Coils, Transformers and Speakers

31683	L-10, 11 . . . .	Loop
31685	L-8, 9 . . . .	Oscillator Coil
31686	L-6, 7-C-14, 15 . . . .	1st I. F. Transformer
31690	L-4, 5-C-9, 10-11 12-R-8, 9 . . . .	2nd I. F. Transformer
31696	L-1, 2, 3 . . . .	Speaker and Output Transformer (complete)
SD-234	L-1, 2 . . . .	Output Transformer
SD-267	L-3 . . . .	Speaker Cone

### Controls and Knobs

31694	R-7 . . . .	Off-On Switch and Volume Control
31695	. . . .	Tone Control Switch
31801	. . . .	Dial Drive Shaft
31260	. . . .	Knob used on 500-S, H—Brown, H—Ivory
32029	. . . .	Knob used on 500-J
32030	. . . .	Knob used on 500-H—Blue
32815	. . . .	Knob used on 500-H—Silver

### Resistors

Piece No.	Circuit Designation	Part
26323	R-3 . . . .	150 Ohm Resistor
26329	R-2 . . . .	470 Ohm Resistor
26333	R-14 . . . .	1000 Ohm Resistor
26348	R-13 . . . .	18000 Ohm Resistor
26349	R-10 . . . .	22000 Ohm Resistor
26362	R-5, 11 . . . .	.27 Megohm Resistor
26369	R-4 . . . .	1 Megohm Resistor
26378	R-12 . . . .	5.6 Megohm Resistor
26381	R-6 . . . .	10 Megohm Resistor
31813	R-1 . . . .	220 Ohm Resistor

### Miscellaneous Parts

18685	. . . .	Felt Foot for Cabinet 500-J
24135	. . . .	Felt Foot for Cabinet 500-S
28652	. . . .	Power Supply Cord
29379	. . . .	Palnut for Control Shafts
30933	. . . .	Pilot Lamp
30947	. . . .	Pilot Lamp Socket Assembly
31680	. . . .	8 Prong Tube Socket
31804	. . . .	Dial Pointer, 500-H
31805	. . . .	Dial Pointer, 500-J, S
31809	. . . .	Dial Assembly Including Bracket and Plate for 500-H
31819	. . . .	Dial (Decal. only for 500-H)
31822	. . . .	Dial Lens for 500-H
31824	. . . .	Drive Cord Assembly
31986	. . . .	Dial (Decal. only for 500-J, S)
31989	. . . .	Dial Assembly Including Bracket and Plate for 500-J, S
32031	. . . .	Dial Lens for 500-J, S
32034	. . . .	Grille Cloth for 500-H—Blue, Silver, Ivory
32035	. . . .	Grille Cloth for 500-J, S
32036	. . . .	Grille Cloth for 500-H—Brown

### Tools and Accessories

24608	. . . .	Aligning Tool
28601	. . . .	Cabinet Polish (pint can)
26962	. . . .	Furniture Touch-up Kit
28303	. . . .	Headphone Package Assembly